National Measurement & Regulation Office

UK/0126/0151

MI-006

EC type-examination certificate UK/0126/0151 Revision 1

Issued by:

The National Measurement and Regulation Office
Notified Body Number 0126

In accordance with the requirements of the Measuring Instruments (Automatic Catchweighers) Regulations 2006 (S.I. 2006 No. 1257) and the Measuring Instruments (Non-Prescribed Instruments) Regulations 2006 (S.I. 2006 No. 1270) which implement, in the United Kingdom, Council Directive 2004/22/EC, this EC type-examination certificate has been issued to:

Ishida Europe Ltd
11 Kettles Wood Drive
Woodgate Business Park
Birmingham, B32 3DB
United Kingdom

In respect of a family of automatic checkweighing instruments designated the DACS-G-S015 and DACS-G-S060 Series and having the following characteristics:

Maximum capacity	Max = 600 / 1500 (or 2500) g	Max = 3000 / 6000 g
Minimum capacity	Min = 8.2 / 35 g	Min = 125 / 350 g
Scale interval	e = 0.2 / 0.5 g	e = 1 / 2 g
Number of scale intervals	n = 3000 (5000) per partial weighing range	
Maximum belt speed	≤ 100 m/min	
Accuracy class	XIII(1)	

The necessary data (principal characteristics, alterations, securing, functioning etc) for identification purposes and conditions (when applicable) are set out in the descriptive annex to this certificate.

This revision replaces previous versions of the certificate.

Issue Date: **09 July 2015**
Valid Until: **18 September 2024**
Reference No: **TS0101/0027**

G Stones
Technical Manager - Certification Services
For and on behalf of the Chief Executive

UKAS PRODUCT CERTIFICATION
0135

National Measurement and Regulation Office I Stanton Avenue I Teddington I TW11 OJZ I United Kingdom
Tel +44 (0) 20 8943 7272 I Fax +44 (0) 20 8943 7270 I Web www.gov.uk/nmro
The NMRO is an Executive Agency of the Department for Business Innovation and Skills

Descriptive Annex

1 INTRODUCTION

This family of mains-powered, dual-range, automatic weighing instruments is designated the DACS-G-S015 and DACS-G-S060 Series, the instruments operate as automatic checkweighers (Category X).

The instruments comprise a cabinet, user interface, in-feed and out-feed conveyors, weighing unit with weigh conveyor, printer, mechanical handling facilities and reject device. The instruments are designed to weigh packs dynamically.

The models are designated DACS-G-S015-xx/xx-xx-x and DACS-G-S060-xx/xx-xx-x, with x reflecting the various configurations as shown in Figure 1.

Figure 2 shows a typical configuration.

2 FUNCTIONAL DESCRIPTION

2.1 Mechanical

2.1.1 The instruments are constructed in stainless steel. The framework is a fabricated floor standing stainless steel frame on adjustable feet. On the frame are mounted the conveyors (in-feed, weigh and out-feed). The conveyors' type and size are not restricted.

2.1.2 The control cabinet is located behind of the conveyors and houses the electrical hardware. An enclosure located below the weigh conveyor houses the AD board and the Dip-Switches protecting the legally-relevant parameters. The Remote Control Unit is mounted in the upper part of the control cabinet. Photocells mounted on the frame are used for pack detection. A printer is located on the side of the cabinet.

2.1.3 Weighing unit

The weighing device comprises a strain gauge load cell located below the centre of the weigh conveyor.

The load cell may be as follows:

DACS-G-S015 Series: Ishida Japan load cell type QLC-12L, E_{max} = 12 kg
DACS-G-S060 Series: Ishida Japan load cell type QLC-60L, E_{max} = 60 kg

Alternatively, any compatible load cell may be used providing the following conditions are met:

- There is a respective OIML Certificate of Conformity (R60) or a parts/test certificate (EN45501) issued for the load cell by a Notified Body responsible for type examination under Directive 2009/23/EEC.
- The certificate contains the load cell types and the necessary load cell data required for the manufacturer's declaration of compatibility of modules (WELMEC 2, Issue 6, 2014, No 10), and any particular installation requirements. A load cell marked NH is allowed only if humidity testing to EN45501 has been conducted on this load cell.
- It is not a load cell with digital output

- The characteristics of the replacement load cell such as n_{lc}, Y, Z are the same or better than the load cell tested dynamically (QLC-12L, E_{max} = 12 kg)
- The design of the load cells and the material are the same
- No oil damper is used

Packs are weighed as they pass over the weigh head conveyor which runs continuously at the speed of the in-feed and out-feed conveyors.

2.2 Electrical

2.2.1 Weighing controller

The weighing controller comprises the A/D converter located on the weigh board, and processes the load cell signal. The controller send the processed weigh signal and photo cell unit signal the DRV board which controls the infeed/outfeed conveyors.

2.2.2 Remote control unit (RCU)

The instruments are fitted with a jog-dial RCU (Figure 3), comprising an LED display, function and numerical keys, jog-dial.

2.3 Devices

The instrument is provided with the following devices:

- Semi-automatic zero-setting device (≤ 4% Max)
- Automatic zero-setting devices (≤ 4% Max)
  - Every 26 min (Range 1) or 65 min (Range2)
  - When no pack has been detected
- Initial zero-setting (≤ 20% Max)
- Determination of stability of equilibrium
- Preset tare device
- Static calibration (not available to the user)
- Dynamic calibration (available to the user, recorded)
- Belt speed set up (available to the user)
- Dynamic setting (available to the user, range =+/ 20 % of nominal weight)
- Events log
- Printing of batch data
- Display check at power up
- e/10 resolution for testing purposes (not available to the user)
- e/10 resolution (d) available for up to 5 s upon command (available to the user)

3 TECHNICAL DATA

3.1 The family of instruments has the following technical characteristics:

DACS-G-S015 Series:

Range	Range 1 (High Precision)	Range 2 (Standard)	
Maximum capacity (Max):	600 g	1500 g	2500 g
Minimum capacity (Min):	8.2 g	35 g	

Scale interval (e =):	0.2 g	0.5 g
Maximum number of scale intervals (n):	3000	5000
Tare (T):	8.2 - 100 g: T ≤ 20 % Gross 100 - 600 g: T ≤ 70 % Gross	35 - 100 g: T ≤ 20 % Gross 100 - 2500 g: T ≤ 70 % Gross
Belt speed:	8.2 - 15 g: 35 m/min 15 - 30 g: 60 m/min 30 - 600 g: 100 m/min	100 m/min
Climatic environment	-5 °C to +40 °C	
	Non-condensing (closed)	
Electromagnetic environments	E1 and E2	
Power supply	240 Va.c. 50 Hz	
Accuracy class	XIII(1)	

DACS-G-S060 Series:

Range	Range 1 (High Precision)	Range 2 (Standard)
Maximum capacity (Max):	3000 g	6000 g
Minimum capacity (Min):	125 g	350 g
Scale interval (e =):	1 g	2 g
Maximum number of scale intervals (n):	3000	
Tare (T):	125 - 500 g T ≤ 20 % Gross 500 - 3000 g: T ≤ 70 % Gross	350 - 1000 g: T ≤ 20 % Gross 1000 - 6000 g: T ≤ 70 % Gross
Belt speed:	125 - 500 g: 60 m/min 500 - 3000 g: 100 m/min	60 m/min
Climatic environment	-5 °C to +40 °C	
	Non-condensing (closed)	
Electromagnetic environments	E1 and E2	
Power supply	240 Va.c. 50 Hz	
Accuracy class	XIII(1)	

3.2 Documentation and drawings

Description	Drawing / Document number	Rev.
User manual	128-7020	01
Block diagram	132-9055	03
Block diagram	132-9054	00
Block diagram	132-6627	04
Block diagram	132-9053	06
Layout	3Z-82613	A
Layout	3Z-82619	A
Sealing method	132-7961	01
Alternative sealing method	133-0311	01
Main board (P-1000) location	132-9404	00
Main board (P-1000) list	132-9405	03
Power supply (LEA75F) location	EA-10313	

Power supply (LEA75F) list	063300	
ADC board (P5656) location/list	132-3842	06
Relational diagram	483-3523	
Load cell QLC-12L	124-9445	08
Load cell QLC-60L	124-9446	01
Load cell mounting	4D-38237	

3.3 Software

3.3.1 Verification information

The legally relevant software shall be as follows:

ADC Version number (ADC): N-51002D
MCU Version number (WM-ID): 2.2
MCU Checksum (WM-CHK): DA06-YYYY

Or (DACS-G-S015, Max = 2500 g only):

ADC Version number (ADC): N-51002E
MCU Version number (WM-ID): 3.0
MCU Checksum (WM-CHK): C131-YYYY

The checksum, (WM-CHK) DA06/C131 – YYYY, is split into 2 parts, where DA06 (or C131) is the checksum of the MCU separated software, and YYYY is the checksum of the data stored on the ADC (zero/span settings, etc.) which may vary.

This information can be displayed by accessing the 'program number' page in the maintenance pages (Figure 4).

3.3.2 Security

The legally relevant parameters are either hard-coded or protected by dip-switches located on the ADC board or the MCU board. Access to the dip-switches is prevented by a tamper-evident solution (see sections 6.2 and 7.1).

3.3.3 Additional software components

The instrument may use the e-marked pre-packaging control system described in EC Test Certificate TC7776.

4 PERIPHERAL DEVICES AND INTERFACES

4.1 Interfaces

The instrument may have the following interfaces:

- Ethernet
- USB (for extraction of stored data only)

4.2 Peripheral devices

The instrument may be connected to any peripheral device that has been issued with an Evaluation Certificate or Parts Certificate by a Notified Body responsible for Annex B (MI-006) under Directive 2004/22/EC in any Member State and bears the CE marking of

conformity to the relevant directives; or

A peripheral device without a certificate may be connected under the following conditions:

- it bears the CE marking for conformity to the EMC Directive;
- it is not capable of transmitting any data or instruction into the weighing instrument, other than to release a printout, checking for correct data transmission or validation;
- it prints weighing results and other data as received from the weighing instrument without any modification or further processing; and
- it complies with the applicable requirements of Paragraph 8.1 of Annex I.

5 APPROVAL CONDITIONS

5.1 The following legends are durably and legibly marked on a rating plate located on the instrument (Figure 5):

'CE' marking
Supplementary metrology marking
Notified Body identification number
Accuracy class
Serial number
Manufacturers mark or name
Certificate number
Model designation
Max
Min
e (= 10 d if applicable)
T = -
Climatic environment
Electromagnetic classification
Maximum speed / pack rate

5.2 The instrument shall be permanently installed.

6 LOCATION OF SEALS AND VERIFICATION MARKS

6.1 The 'CE' mark shall be impossible to remove without damaging it. The rating plate shall be impossible to remove without it being destroyed.

The markings and inscriptions shall fulfil the requirements of Paragraph 9 of Annex I of the Directive 2004/22/EC.

6.2 Components that may not be dismantled or adjusted by the user (load cell, dip-switches) must be secured. The seals shall bear a securing mark which may be either:

- a mark of the manufacturer and/or manufacturer's representative, or
- an official mark of a verification officer.

Figures 6 and 7 show the sealing methods for the load cell casing and the dip-switches respectively.

7 ALTERNATIVES

7.1 Having a modified sealing method: the dip-switches on the ADC board are replaced by a dip-switch on the MCU board.

The software identification described in section 3.3.1 is as follows:

ADC Version number (ADC):	N-51002E
MCU Version number (WM-ID):	3.0
MCU Checksum (WM-CHK):	C131-YYYY

Figures 8 and 9 show the load cell and dip-switch sealing methods respectively.

8 ILLUSTRATIONS

Figure 1 Designation
Figure 2 Typical configuration
Figure 3 Jog-dial RCU
Figure 4 Verification information
Figure 5 Rating plate example
Figure 6 Load cell sealing method
Figure 7 Dip-switches sealing method
Figure 8 Load cell sealing alternative method
Figure 9 Dip-switch sealing method (MCU board)

9 CERTIFICATE HISTORY

ISSUE NO.	DATE	DESCRIPTION
UK/0126/0151	19 September 2014	Type examination certificate first issued.
UK/0126/0151 Rev 1	09 July 2015	Addition to the front page, section 1. and section 3.1: DACS-G-S015 Series, Addition to the front page: (or 2500), (5000). Section 2.3: e/10 resolution modes added. Section 3.1:Tare values corrected. Section 3.3.1: addition of Software verification information for DACS-G-S015, Max = 2500 g, and change to wording: The checksum (WM-CHK) is split into 2 parts, DA06-XXXX, where DA06 is the checksum of the MCU separated software, and XXXX is the checksum of the data stored on the ADC (zero/span settings, etc.) which may vary. is replaced as in 3.3.1 Section 5.1: addition of (= 10 d when applicable). Section 7.1 added.

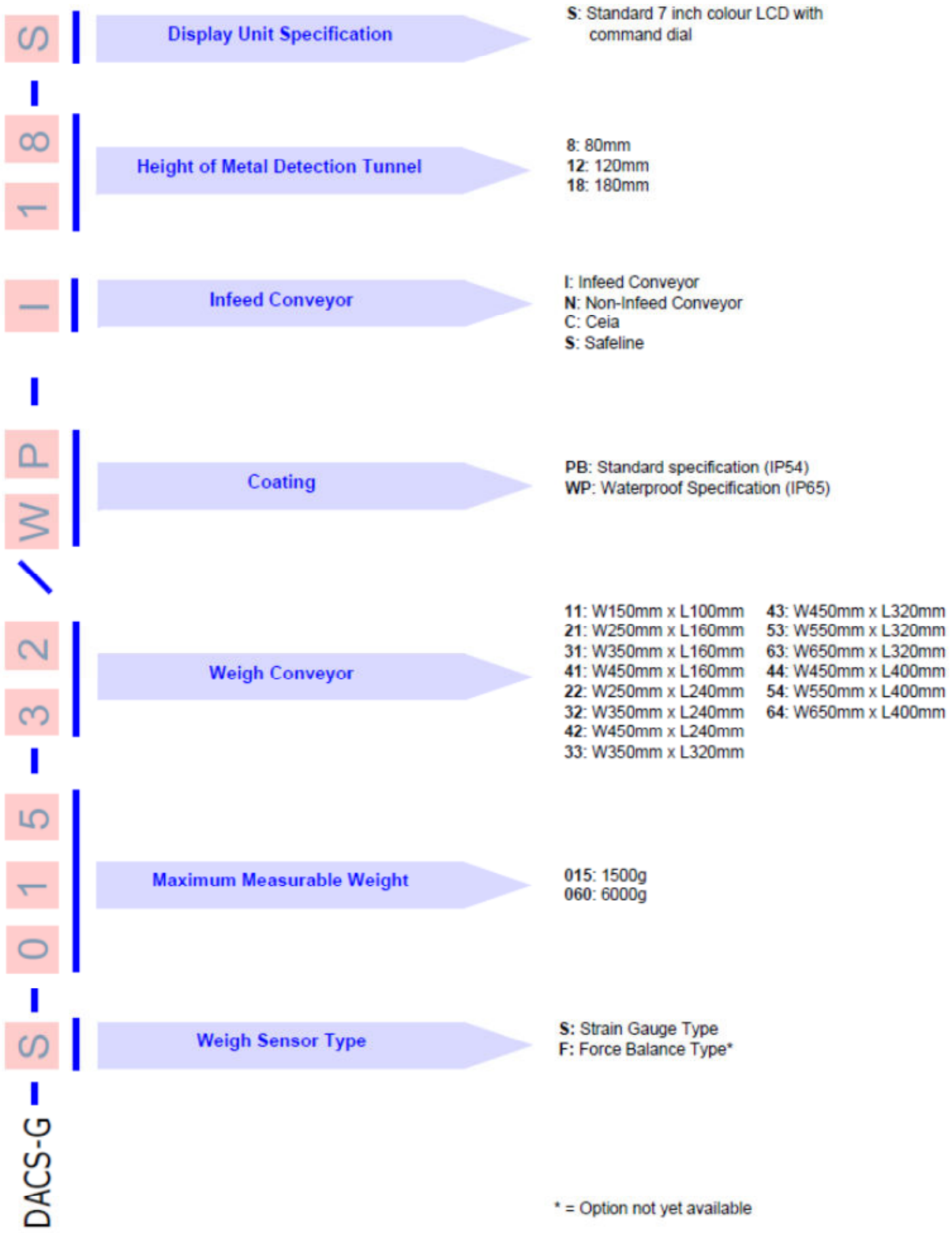

Figure 1 Designation

Figure 2 Typical configuration

Figure 3 Jog-dial RCU

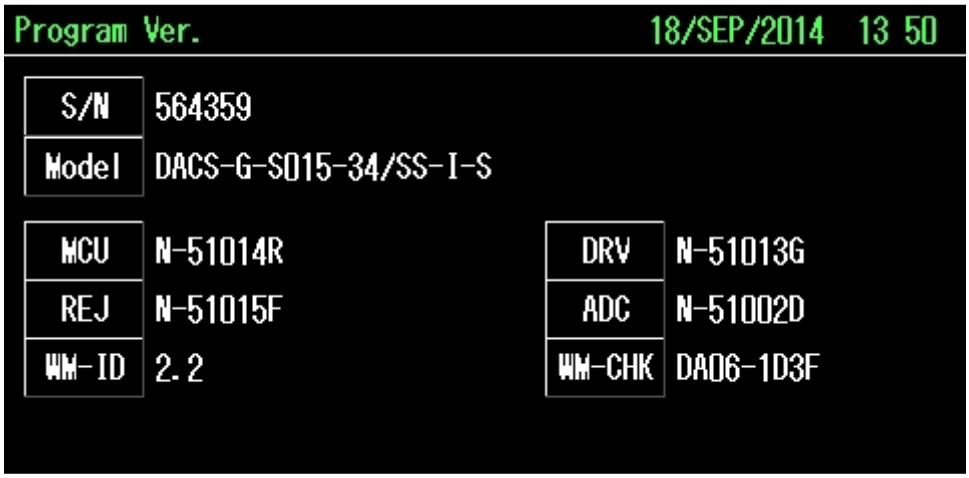

Figure 4 Verification information

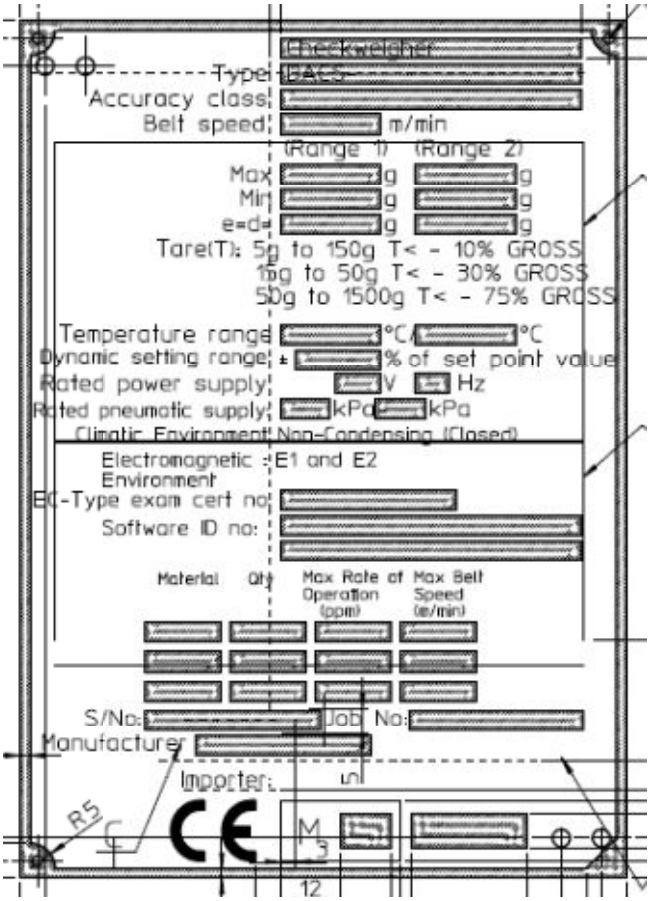

Figure 5 Rating plate example

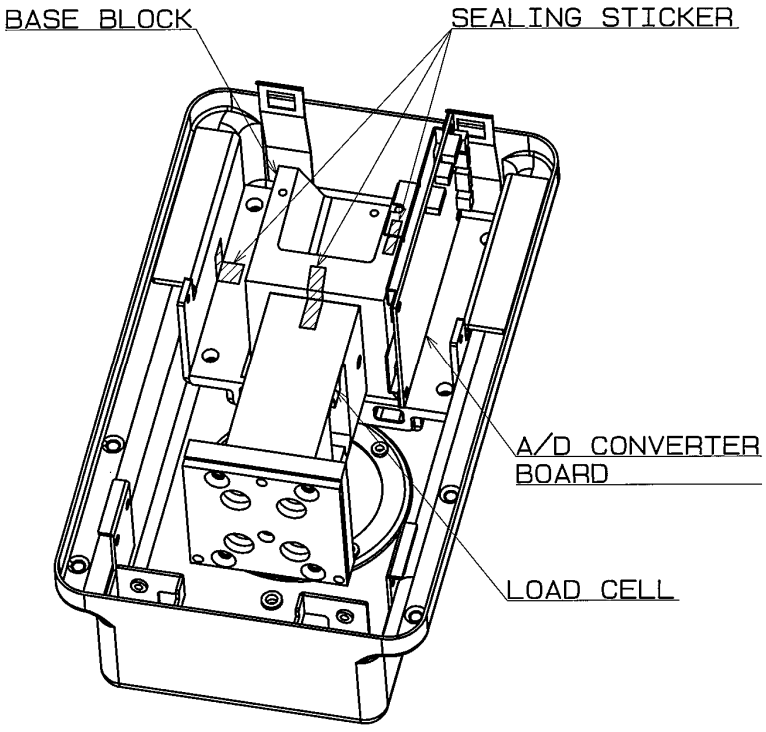

Figure 6 Load cell sealing method

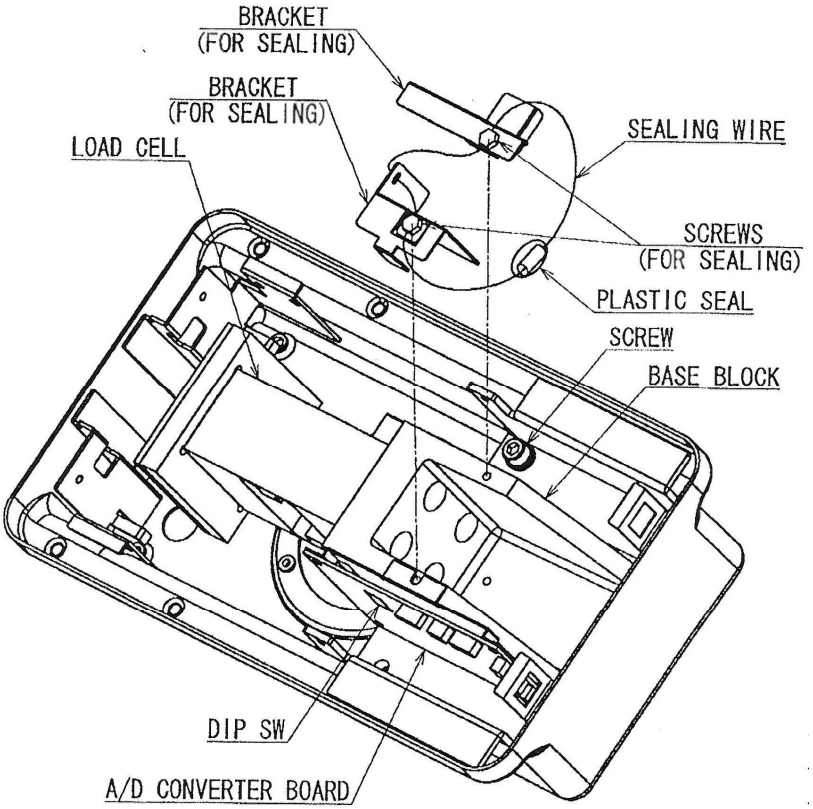

Figure 7 Dip-switches sealing method

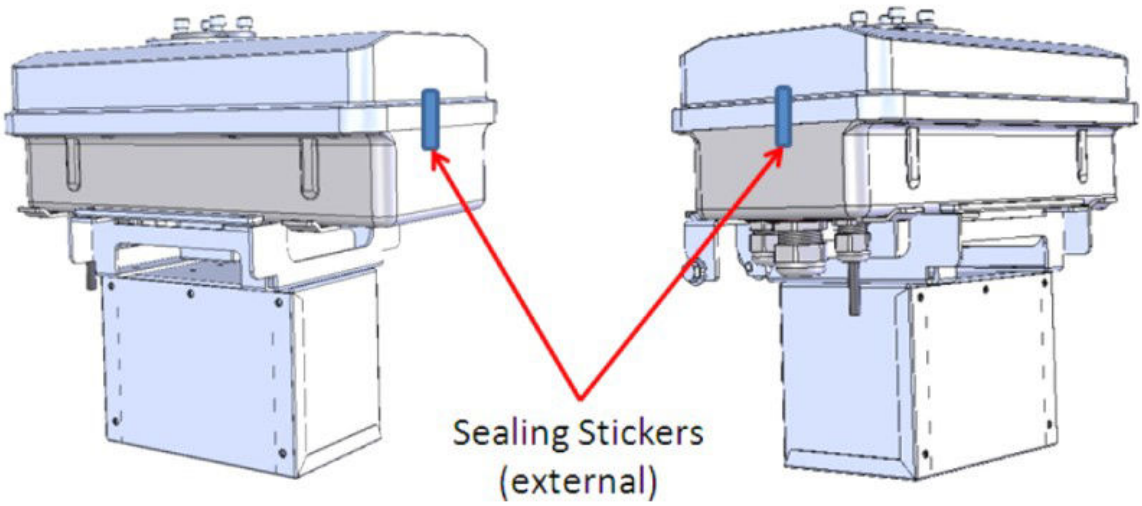

Figure 8 Load cell sealing alternative method

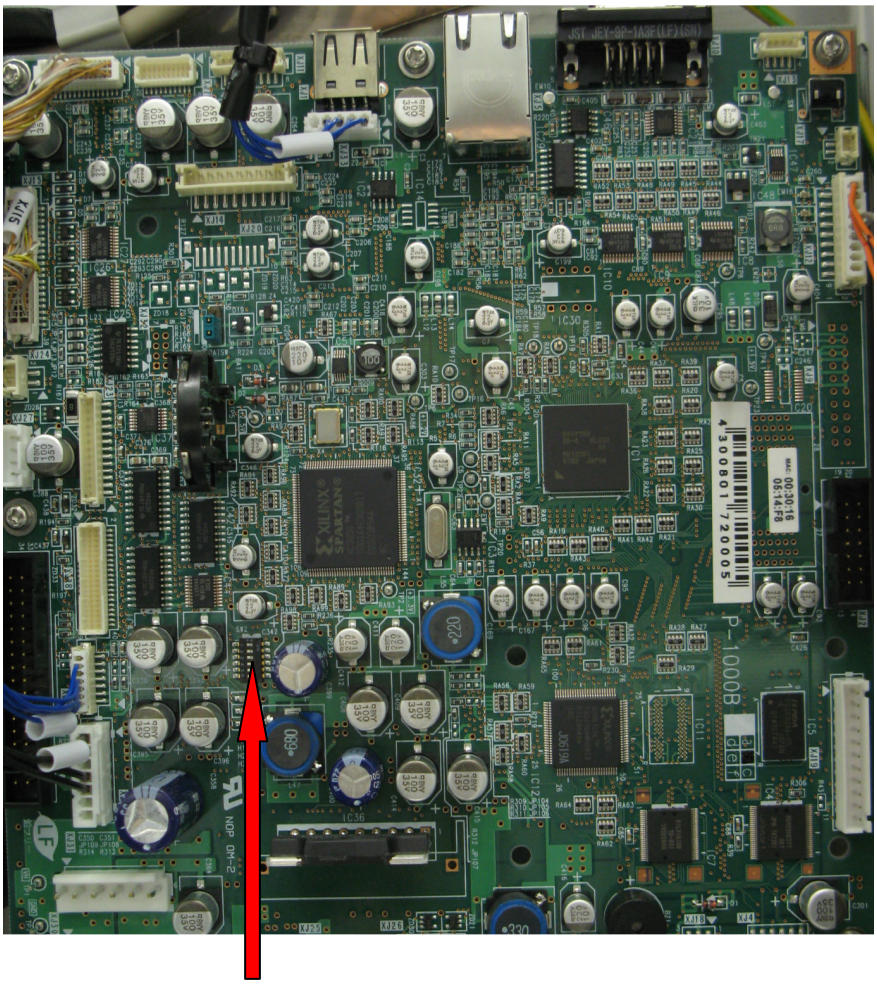

Figure 9 Dip-switch sealing method (MCU board)

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